

REMARKS/ARGUMENTS

Claims 1, 3, 5-9, 11, 12, and 14-19 are pending in this application. Claims 1, 3, 5-9, 11, 12, 14 and 15 stand rejected. By this Amendment, claims 1, 3, 7, and 9 have been amended and claims 16-19 are added. In light of the amendments and remarks set forth below, Applicant respectfully submits that each of the pending claims is in immediate condition for allowance.

Claims 1, 3, 5, 7-9, 11 and 14 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 3,638,491 (“Hart”) in view of U.S. Patent No. 3,404,215 (“Burks”). Applicant requests reconsideration and withdrawal of this rejection.

Claim 1 recites three specific steps of a method. Those steps are (1) “arranging one or more electronic modules on a substrate”, (2) “fixating the substrate with respect to a fuel tank wall”, and (3) “soldering a metal cap to metallization on the substrate to form an encapsulated space, said one or more electronic modules being disposed in said encapsulated space and separated from any fuel or vapour outside said encapsulated space”. Hart fails to disclose the substrate forming a portion of the encapsulated space.

In Hart, an electronic circuit is supported on a board 17 placed within a tube 13. A plug 16 closes a first end of the tube and the opposite end of the tube is affixed to a mounting flange 11. There is no cap soldered to the board 17 of Hart. Thus, the explicitly recited method step of “soldering a metal cap to metallization on the substrate to form an encapsulated space, said one or more electronic modules being disposed in said encapsulated space and separated from any fuel or vapour outside said encapsulated space” is not disclosed in Hart.

The Examiner attempts to cure this deficiency in Hart with the teachings of U.S. Patent No. 3,404,215 (“Burks”). However, Burks fails to cure the deficiency in Hart for which it was cited. Additionally, Burks fails to disclose affixing the substrate to a fuel tank wall.

In Burks, the cap 12 and substrate 14 are constructed of the same material to ensure high reliability of the seal. The seal is accomplished using a ring of fusible material or an insulating layer such as glass or ceramic frit applied to the surface of the substrate and then a metalized layer on both the sealing ring and the edge of the shell. See Col. 2, lines 20-24, 32-37 and 71-72 of Burks.

Burks fails to disclose a cap soldered directly to the substrate. In the embodiments of Burks disclosed in Figures 1, 2 and 5, an insulating layer of fusible insulating materials such as glass or ceramic frit is applied to the substrate so that a subsequent soldering or braising operation will not short terminals 24. Further, in the embodiment shown in Figure 2, a fusible material 42 such as glass or ceramic frit or braising alloy is provided on the substrate in the area of the seal. As indicated for braising or soldering, both the shell and substrate are first prepared with a metallization suitable for hermetic seals. Thus, in this embodiment, the shell and substrate are both of the same nonconductive material. Although Burks notes that a shell of metal or other ceramic could be employed, the thermal coefficient of expansion should substantially match (see col. 3, lines 2-3 of Burks) thereby teaching away from the mismatched materials of the present disclosure, i.e., metal cap and substrate having electronic modules. Furthermore, such an embodiment of Burks would still require a non-conductive ring.

For all the above reasons, the combination of Hart and Burks fails to disclose, teach or suggest “soldering a metal cap to metallization on said substrate to form an encapsulated space, said one or more electronic modules being disposed in said encapsulated space and separated from any fuel or vapour outside said encapsulated space”, as expressly recited in independent claim 1.

Independent claims 3, 7, and 9 recite, *inter alia*, a metal encapsulating cap soldered to metallization on the substrate. As discussed above, and noted by the Examiner, Hart fails to

disclose the cap soldered to the substrate. As discussed above with respect to claim 1, Burke fails to cure the deficiency in Hart. Therefore, independent claims 3, 7, and 9 are in condition for allowance.

Claims 6, 12 and 15 stand rejected under 35 USC §103 as being unpatentable over Hart and Burks and further in view of U.S. Patent No. 5,832,772 (“McEwan”). The inclusion of McEwan fails to cure the deficiencies noted in Burks and Hart discussed above. Therefore, the pending rejections must be withdrawn.

New claims 16-19 each recite that the substrate is fixed directly to the fuel tank wall. Support for this limitation is found, for example, at paragraph [0017] of the published version of the present application (US 2007/0056367).

Applicant has responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested. If the Examiner believes an interview would be of assistance, the Examiner is encouraged to contact the undersigned at the number listed below.

It is believed that no additional fees or charges are required at this time in connection with the present application. However, if any additional fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
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